WHAT IS CLAIMED IS:

1. An electrooptic system array having a plurality of electron lenses, comprising:

at least two electrode structures which respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a spacer which is interposed between the facing membranes and determines a gap between the facing membranes.

2. The array according to claim 1, wherein said spacer includes an insulator.

3. The array according to claim 1, wherein said spacer is made of photosensitive glass.

4. The array according to claim 1, wherein said spacer is arranged at a position where said spacer does not close the apertures of each membrane.

5. The array according to claim 1, wherein said spacer includes a plate having a plurality of apertures at positions corresponding to the plurality of apertures of each membrane.

6. The array according to claim 1, wherein

said spacer includes a plurality of members having apertures, and

the plurality of members are arranged to make positions of the apertures of the plurality of members coincide with positions of the plurality of apertures

of each membrane.

7. The array according to claim 1, wherein at least one of said at least two electrode structures comprises:

a plurality of electrically independent wiring lines; and

a plurality of electrode members connected to the plurality of wiring lines.

8. The array according to claim 1, wherein at least one of said at least two electrode structures has a single electrode member common to the plurality of apertures.

9. The array according to claim 1, wherein the electrode structures respectively have supports for supporting the membranes.

10. The array according to claim 9, further comprising a member which is interposed between the supports of said facing electrode structures and determines a gap between the facing supports.

11. The array according to claim 9, wherein

the supports of said facing electrode structures respectively have grooves at facing positions, and

the electrooptic system array further comprises a fiber which is between the facing grooves and defines a gap between the facing supports.

12. An electrooptic system array having a plurality of electron lenses, comprising:

at least two electrode structures which respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a plurality of spacers which are located in a gap of the facing membranes and determine the gap at a plurality of positions of the facing membranes.

13. The array according to claim 12, wherein each of said plurality of spacers includes a columnar member.

14. The array according to claim 12, wherein each of said plurality of spacers includes a linear member.

15. The array according to claim 12, wherein each of said plurality of spacers has a dice shape.

16. The array according to claim 12, wherein each of said plurality of spacers has a cylindrical shape.

17. A charged-particle beam exposure apparatus comprising:

a charged-particle beam source for emitting a charged-particle beam;

an electrooptic system array which has a plurality of electron lenses and forms a plurality of intermediate images of said charged-particle beam source by the plurality of electron lenses; and

a projection electrooptic system for projecting on a substrate the plurality of intermediate images formed by said electrooptic system array,

said electrooptic system array including:

at least two electrode structures which respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a spacer which is interposed between the facing membranes and determines a gap between the facing membranes.

18. A device manufacturing method comprising the steps of:

installing a plurality of semiconductor manufacturing apparatuses including a charged-particle beam exposure apparatus in a factory; and

manufacturing a semiconductor device by using the plurality of semiconductor manufacturing apparatuses,

the charged-particle beam exposure apparatus having:

a charged-particle beam source for emitting a charged-particle beam;

an electrooptic system array which has a plurality of electron lenses and forms a plurality of intermediate images of the charged-particle beam source by the plurality of electron lenses; and

a projection electrooptic system for projecting on a substrate the plurality of intermediate images formed by the electrooptic system array,

the electrooptic system array including:

at least two electrode structures which

respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a spacer which is interposed between the facing membranes and determines a gap between the facing membranes.

19. The method according to claim 18, further comprising the steps of:

connecting the plurality of semiconductor manufacturing apparatuses by a local area network;

connecting the local area network to an external network of the factory;

acquiring information about the charged-particle beam exposure apparatus from a database on the external network by using the local area network and the external network; and

controlling the charged-particle beam exposure apparatus on the basis of the acquired information.

20. A semiconductor manufacturing factory comprising:

a plurality of semiconductor manufacturing apparatuses including a charged-particle beam exposure apparatus;

a local area network for connecting said plurality of semiconductor manufacturing apparatuses; and

a gateway for connecting the local area network to an external network of said semiconductor

manufacturing factory,

said charged-particle beam exposure apparatus having:

a charged-particle beam source for emitting a charged-particle beam;

an electrooptic system array which has a plurality of electron lenses and forms a plurality of intermediate images of said charged-particle beam source by the plurality of electron lenses; and

a projection electrooptic system for projecting on a substrate the plurality of intermediate images formed by said electrooptic system array,

said electrooptic system array including:

at least two electrode structures which respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a spacer which is interposed between the facing membranes and determines a gap between the facing membranes.

21. A maintenance method for a charged-particle beam exposure apparatus, comprising the steps of:

preparing a database for storing information about maintenance of the charged-particle beam exposure apparatus on an external network of a factory where the charged-particle beam exposure apparatus is installed;

connecting the charged-particle beam exposure

apparatus to a local area network in the factory; and

maintaining the charged-particle beam exposure apparatus on the basis of the information stored in the database by using the external network and the local area network,

the charged-particle beam exposure apparatus having:

a charged-particle beam source for emitting a charged-particle beam;

an electrooptic system array which has a plurality of electron lenses and forms a plurality of intermediate images of the charged-particle beam source by the plurality of electron lenses; and

a projection electrooptic system for projecting on a substrate the plurality of intermediate images formed by the electrooptic system array,

the electrooptic system array including:

at least two electrode structures which respectively include membranes each having a plurality of apertures and are arranged along an optical axis; and

a spacer which is interposed between the facing membranes and determines a gap between the facing membranes.

electrooptic system array can be maintained at a high precision by interposing a spacer between them. The present invention can satisfy both high precision and high reliability at high level. An exposure apparatus constituted using this electrooptic system can produce a device at a high precision.

As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the appended claims.